MEMORANDUM

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

NORTHERN REGIONAL OFFICE

13901 Crown Court Woodbridge, VA 22193

SUBJECT: Dominion – Possum Point Power Station VA0002071

TO: Tom Faha

FROM: Dan Demers and Susan Mackert

DATE: April 15, 2014

UPDATED: April 16, 2014

COPIES: Trisha Beasley, Rich Doucette, Bryant Thomas

BACKGROUND

Staff received a call from Dominion on Wednesday, April 9, 2014, concerning the presence of three previously unaccounted for ash ponds (A, B, and C) located at the Possum Point Power Station. The ash pond complex is located on a parcel of land between Possum Point Road and Quantico Creek (Attachment 1). The ash pond complex was constructed in approximately 1955 and was last used in 1972. Ash was deposited in all three ponds starting with "A", moving to "B", and then to "C" as the ponds filled.

Dominion noted that a discharge structure and discharge pipe remain in place at Ash Pond C which has a direct discharge to Quantico Creek. A sample was collected from the discharge. According to Dominion, sample results indicate the presence of some trace metals typically associated with ash pond operations.

Dominion also noted a breach of the berm associated with Ash Pond A. Dominion believes storm water has collected along the berm causing the storm water to overtop the berm. An area approximately five feet wide by six feet deep has been eroded. It is Dominion's belief that this has been occurring for some time.

After speaking with Dominion, staff briefed Northern Regional Office (NRO) management on April 9, 2014. NRO staff was directed to conduct a site visit to the Possum Point Power Station by week's end.

SUMMARY OF FIELD OBSERVATIONS

April 11, 2014

On April 11, 2014, Dan Demers and Susan Mackert conducted a site visit to observe the ash pond complex and gather additional information from Dominion. Dominion staff present included Ken Roller and Jeff Marcell. Photographs taken during this site visit are provided in Attachment 2. The following are noted:

- The facility ceased the use of coal in March 2003.
- The quantity of ash deposited in to the ash pond complex is unknown. Staff requested that, if the information is available, Dominion review the amount of coal burned during the usage period of the ash ponds to determine an estimate of ash quantity.
- The acreage of each ash pond is unknown. An aerial survey was conducted within the last two weeks and Dominion anticipates acreage information will be available soon. Additionally, the survey will be used to determine the extent of the complex so that a proposed channel can be constructed to redirect all surface water flow to Ash Pond C; thereby stopping the apparent over topping of the berm and subsequent erosion at the area of the breach.

- Dam safety staff from the Department of Conservation and Recreation (DCR) has been contacted. Dominion is awaiting guidance from DCR staff concerning core sampling. As of the date of the site visit, a schedule for core sampling was not in place.

- Staff from the U.S. Army Corps of Engineers has been contacted concerning a wetlands determination.

- Ash Ponds A, B, and C are overgrown with vegetation (photos 1 – 9). There is no evidence that the ash ponds are lined (synthetic or natural) or capped.

- A discharge weir structure does remain in place at Ash Pond C (photos 10 – 11). The structure at Ash Pond C is draining and/or seeping through a gap in the wall at approximately thirty-five inches below the top as measured by Dominion staff. Flow is estimated at approximately two gallons per minute (photo 12). The discharge is directly to Quantico Creek (photos 13 – 14) and is tidally influenced.

- Two groundwater monitoring wells are located just off the access road in to the ash pond complex in closest proximity to Ash Pond C (photo 15).

- The berm wall for Ash Ponds A, B, and C is one continuous wall (photo 16). There is a downward slope towards Quantico Creek (photo 17). The toe of the path that serves as the berm appears to have seepage along all three ash ponds.

- There is an intermittent overflow point from Ash Pond B (photos 18 – 19). Heavy rains cause this area to overtop the berm wall and drain down the berm slope towards Quantico Creek (photo 20). Standing water in this area appeared dark in color.

- The breach area identified at Ash Pond A (photo 21) appeared to have some vegetation and did not appear to be new. Staff estimates this area to be possibly six to nine months old. Dominion noted a constant flow since the breach was first discovered in March 2014. The flow appeared to be a combination of surface drainage (photos 22 - 24) and seepage through the berm. There did not appear to be erosion at the low flow observed. However, during rain events it does appear that there is potential for severe erosion from water running over the berm. The discharge would flow across a heavily vegetated area prior to any discharge to Quantico Creek (photo 25). Samples have not been collected from this point.

- Ash Pond A has an additional area of flow along the southeastern edge adjacent to the closed sewage treatment lagoons (photos 26 - 28) that may have seepage through the berm.

- The facility's existing ash ponds, D and E, were also observed. No issues were noted.

- Ash Pond D is a lined structure with a surface area of 72 acres and a maximum depth of 120 feet. The pond was placed in to service in 1989 and serves as the permanent repository for sediment and ash generated at the Possum Point Power Station.

- Ash Pond E is an unlined structure with a surface area of approximately 40 acres.

April 15, 2014

On April 15, 2014, Susan Mackert conducted a site visit to observe the ash pond complex due to the heavy rains forecasted for the area. Dominion staff present included Jeff Marcell. Photographs taken during this site visit are provided in Attachment 3. The following are noted:

- Weather data for the Possum Point Power Station is obtained from the National Oceanic and Atmospheric Administration (NOAA) station at the Quantico Marine Corps Air Facility. Rainfall data for April 15, 2014, is provided in Attachment 4.

- Rain began falling at approximately 6:00 am on April 15, 2014. Rainfall was heavy at times with approximately one inch being recorded prior to the site visit.

- A visual observation of the breach area identified at Ash Pond A was made. The area appeared to be visually consistent with observations noted during the April 11, 2014, site visit. No water was noted as running over the berm (photo 1). Water collecting at the edge of Ash Pond A was noted as flowing (photo 2).

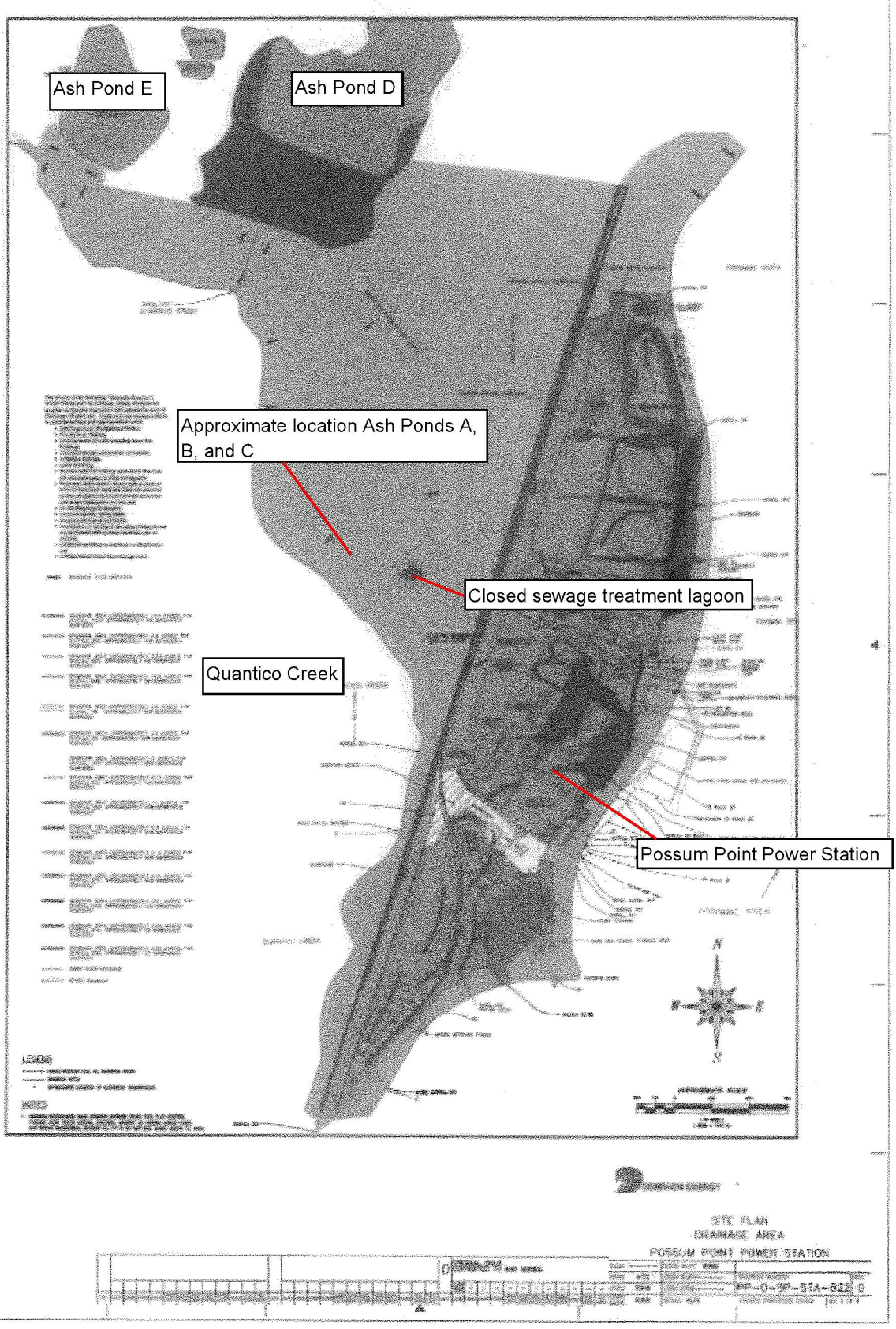
- Flow from the breach area was observed (photos 3 – 4). The flow was distinctly audible, which was not the case during the previous site visit on April 11, 2014.

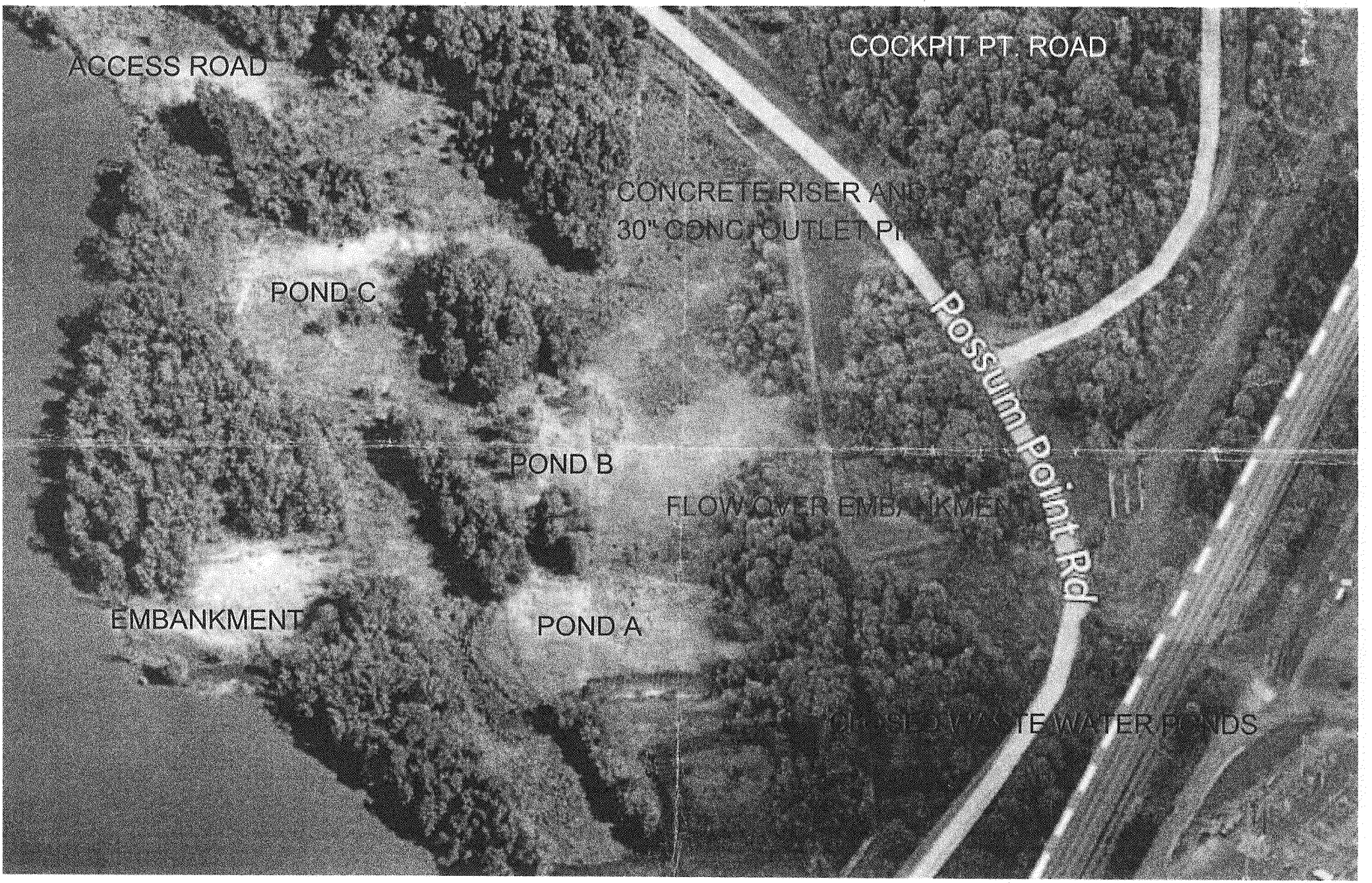
- A visual observation of the suspected overflow point at Ash Pond B was made. The area appeared to be visually consistent with observations noted during the April 11, 2014, site visit. Water was observed collecting at the edge of Ash Pond B (photo 5). No water was observed running over the berm (photos 6 – 7).

- Clarification was provided by Dominion concerning the two groundwater monitoring wells located just off the access road in to the ash pond complex. The wells are included in a groundwater monitoring plan required by the facility's Virginia Pollutant Discharge Elimination System (VPDES) permit number VA0002071. The wells do not capture water from the ash pond complex.

- Dominion stated DCR staff will be on site Thursday, April 24, 2014.

Attachment 1 - Maps


Ash Pond E
Ash Pond D
Approximate location Ash Ponds A, B, and C
Closed sewage treatment lagoon
Quantico Creek
Possum Point Power Station
N
S
SITE PLAN
DRAINAGE AREA
POSSUM POINT POWER STATION


ACCESS ROAD
COCKPIT PT. ROAD
CONCRETE RISER AND
30" CONC. OUTLET PI
POND C
Possum Point Rd
POND B
FLOW OVER EMBANKMENT
EMBANKMENT
POND A
WASTEWATER PONDS

Attachment 2: Photographs from April 11, 2014 Field Observations

Photo 1. Ash Pond C.

Photo 2. Ash Pond C.

Photo 3. Ash Pond C.

Photo 4. Ash Pond C.

Photo 5. Transition point from Ash Pond C to Ash Pond B.

Photo 6. Transition point from Ash Pond C to Ash Pond B.

Photo 7. Transition point from Ash Pond B to Ash Pond A.

Photo 8. Ash Pond A.

Photo 9. Ash Pond A.

Photo 10. Discharge structure at Ash Pond C.

Photo 11. Discharge structure at Ash Pond C.

Photo 12. Flow into discharge structure at Ash Pond C.

Photo 13. Discharge pipe associated with Ash Pond C. Flow is in the direction of the arrow.

Photo 14. Discharge path from pipe in photo 13 to Quantico Creek. Flow is in the direction of the arrow.

Photo 15. Groundwater monitoring wells located in proximity to Ash Pond C.

Photo 16. Berm wall.

Photo 17. Down slope of berm wall. Quantico Creek is in the direction of the arrow.

Photo 18. Overflow point from Ash Pond B.

Photo 19. Overflow point from Ash Pond B.

Photo 20. Overflow point from Ash Pond B reaching downward slope towards Quantico Creek.

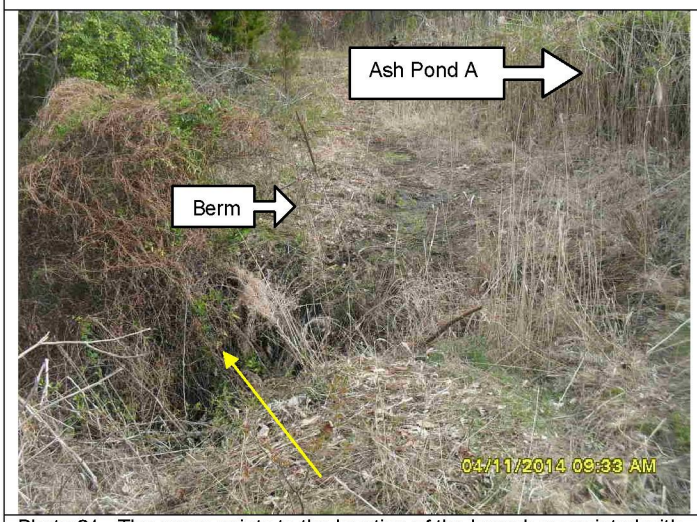


Photo 21. The arrow points to the location of the breach associated with Ash Pond A.

Photo 22. Surface drainage to breach.

Photo 23. Surface drainage to breach.

Photo 24. Surface drainage to breach.

Photo 25. Flow from breach area would travel in the direction of the arrow towards Quantico Creek.

Photo 26. Southeastern edge of Ash Pond A adjacent to closed sewage treatment lagoons.

Photo 27. Flow noted in area shown in photo 26.

Photo 28. Flow noted in area shown in photo 26.

Attachment 3: Photographs from April 15, 2014 Field Observations

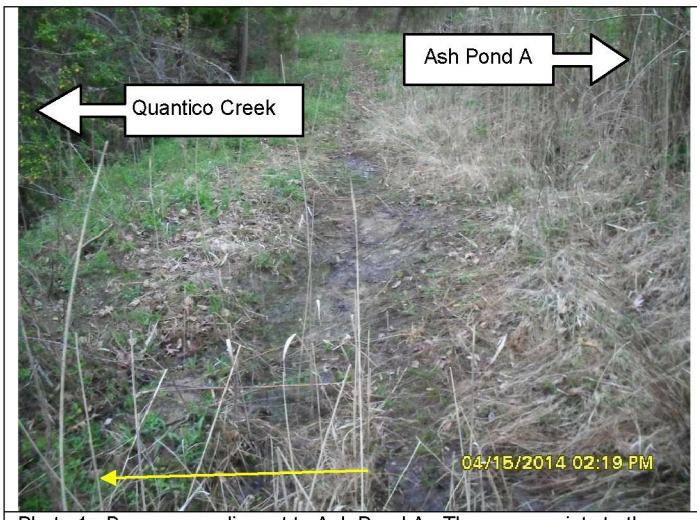


Photo 1. Berm area adjacent to Ash Pond A. The arrow points to the area of the breach. Note standing water on berm.

Photo 2. Water collected at the edge of Ash Pond A. Water was flowing in the direction of the arrow.

Photo 3. Breach area of Ash Pond A. Flow from the breach is in the direction of the arrow.

Photo 4. Close up of breach area of Ash Pond A.

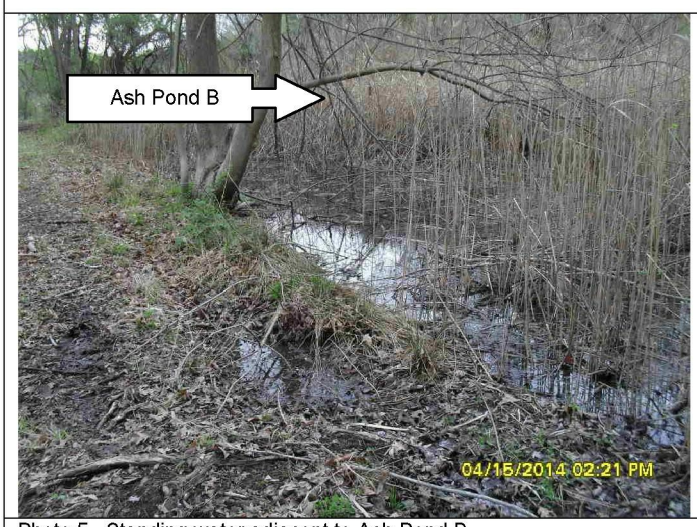


Photo 5. Standing water adjacent to Ash Pond B.

Photo 6. Berm area adjacent to Ash Pond B. Note no water flowing over the berm.

Photo 7. Overflow point from Ash Pond B.

Attachment 4: Rain Data from April 15, 2014

Weather observations for the past three days

Quantico Marine Corps Air Facility

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Date	Time (edt)	Wind (mph)	Vis. (mi.)	Weather	Sky Cond.	Temperature (°F) Air	Dwpt	6 hour Max.	6 hour Min.	Relative Humidity	Wind Chill (°F)	Heat Index (°F)	Pressure altimeter (in)	Pressure sea level (mb)	Precipitation (in.) 1 hr	3 hr	6 hr
16	10:56	N 21 G 26	10.00	Fair and Breezy	CLR	41	14			33%	32	NA	30.46	1031.6			
16	09:56	N 21 G 26	10.00	Fair and Breezy	CLR	39	13			34%	29	NA	30.44	1030.8			
16	08:56	N 15 G 28	10.00	Fair	CLR	37	15			41%	28	NA	30.42	1030.0			
16	07:56	N 13 G 22	10.00	Fair	CLR	35	17	36	33	48%	26	NA	30.37	1028.5			
16	06:56	N 14 G 23	10.00	Fair	CLR	33	16			49%	23	NA	30.33	1027.3			
16	05:56	N 12 G 22	10.00	Fair	CLR	34	17			50%	25	NA	30.29	1025.6			
16	04:56	N 14 G 22	10.00	Fair	CLR	34	17			50%	25	NA	30.24	1024.1			
16	03:56	N 15 G 31	10.00	Fair	CLR	35	15			44%	25	NA	30.20	1022.6			
16	02:56	N 18 G 30	10.00	Fair	CLR	35	17			48%	24	NA	30.17	1021.6			
16	01:56	N 15 G 24	10.00	Fair	CLR	36	19	41	36	50%	27	NA	30.13	1020.4			0.04
16	00:56	N 24 G 38	10.00	A Few Clouds and Breezy	FEW048	37	21			52%	26	NA	30.11	1019.6			
15	23:56	N 13 G 25	10.00	Mostly Cloudy	BKN044	39	24			55%	31	NA	30.08	1018.6			
15	22:56	N 13	10.00	Overcast	OVC040	40	30			68%	32	NA	30.06	1018.1		0.04	
15	21:56	NE 9	10.00	Overcast	SCT010 BKN030 OVC050	39	34			82%	33	NA	30.00	1015.8	0.02		
15	20:56	N 15 G 22	6.00	Light Rain Fog/Mist	FEW015 BKN030 OVC060	39	35			86%	31	NA	29.95	1014.3	0.02		
15	19:56	N 17 G 26	5.00	Light Rain	SCT015 BKN030 OVC060	41	36	73	41	82%	33	NA	29.90	1012.5	0.09		0.36
15	18:56	N 14 G 30	7.00	Light Rain	SCT020 OVC050	43	37			80%	36	NA	29.86	1011.1	0.03		
15	17:56	N 21 G 35	6.00	Light Rain and Breezy	BKN020 OVC035	45	40			83%	37	NA	29.79	1008.8	0.08		
15	16:56	N 21	3.00	Light	FEW016	47	41			80%	39	NA	29.74	1007.3	0.08	0.16	

April

		G 30		Rain and Breezy	BKN021 OVC039												
15	15:56	N 21 G 31	4.00	Light Rain and Breezy	FEW010 OVC030	50	45			83%	43	NA	29.70	1005.7	0.08		
15	14:56	N 14 G 25	10.00	Light Rain	FEW014 OVC029	53	48			83%	NA	NA	29.65	1004.3			
15	13:56	SW 17 G 25	10.00	Overcast	BKN030 OVC100	72	59	72	63	64%	NA	NA	29.57	1001.5			0.98
15	12:56	SW 15	10.00	Overcast	SCT031 BKN041 OVC095	68	63			84%	NA	NA	29.58	1001.7			
15	11:56	S 13	10.00	Overcast	BKN018 OVC026	67	64			91%	NA	NA	29.59	1001.9			
15	10:56	S 12	10.00	Overcast	BKN028 BKN060 OVC110	64	62			93%	NA	NA	29.57	1001.5		0.98	
15	09:56	SW 6	10.00	Light Rain	SCT028 BKN060 OVC110	64	62			93%	NA	NA	29.62	1003.1	0.31		
15	08:56	SW 10 G 21	0.75	Heavy Rain Fog/Mist	BKN017 BKN027 OVC043	65	62			90%	NA	NA	29.63	1003.6	0.67		
15	07:56	S 16	6.00	Light Rain Fog/Mist	SCT020 BKN026 OVC045	64	60	66	64	87%	NA	NA	29.64	1003.8	0.04		0.05
15	06:56	S 18	10.00	Light Rain	BKN025 OVC031	65	60			84%	NA	NA	29.65	1004.3	0.01		
15	05:56	S 14	10.00	Light Rain	BKN028 BKN032 OVC044	65	60			84%	NA	NA	29.68	1005.0			
15	04:56	S 12	10.00	Overcast	OVC027	64	59			84%	NA	NA	29.70	1005.9			
15	03:56	S 13	10.00	Overcast	OVC026	66	59			78%	NA	NA	29.73	1006.8			
15	02:56	S 12	10.00	Mostly Cloudy	BKN031 BKN110	64	59			84%	NA	NA	29.75	1007.6			
15	01:56	S 12	10.00	Partly Cloudy	FEW042 SCT049 SCT060	65	59	70	64	81%	NA	NA	29.78	1008.6			0.01
15	00:56	SW 15	10.00	Overcast	OVC046	68	59			73%	NA	NA	29.81	1009.5			
14	23:56	SW 16	10.00	Light Rain	FEW036 BKN047 OVC055	69	59			70%	NA	NA	29.82	1009.9	0.01		
14	22:56	S 12	10.00	Overcast	OVC075	67	57			71%	NA	NA	29.84	1010.4			
14	21:56	SW 6	10.00	Mostly Cloudy	BKN090	67	55			66%	NA	NA	29.84	1010.6			
14	20:56	SW 6	10.00	Fair	CLR	66	56			70%	NA	NA	29.85	1010.8			
14	19:56	SW 8	10.00	Fair	CLR	67	56	78	65	68%	NA	NA	29.84	1010.5			
14	18:56	S 12	10.00	Fair	CLR	67	56			68%	NA	NA	29.85	1010.8			
14	17:56	SW 14 G 23	10.00	Overcast	FEW020 BKN060 OVC180	75	51			43%	NA	NA	29.87	1011.6			
14	16:56	SW 9	10.00	Overcast	FEW060	77	51			40%	NA	78	29.88	1012.1			

April

		G 20			OVC180									
14	15:56	SW 13 G 29	10.00	Overcast	SCT060 OVC200	75	53			46%	NA	NA	29.90	1012.6
14	14:56	SW 10 G 24	10.00	Mostly Cloudy	SCT070 BKN150	77	52			42%	NA	78	29.92	1013.1
14	13:56	SW 23 G 32	10.00	Mostly Cloudy and Breezy	SCT050 BKN080	75	53	76	65	46%	NA	NA	29.94	1013.8
14	12:56	SW 23 G 32	10.00	Mostly Cloudy and Breezy	SCT050 BKN060 BKN150	74	54			50%	NA	NA	29.96	1014.6
14	11:56	SW 16 G 30	10.00	Mostly Cloudy	BKN039 BKN049 BKN150	72	55			55%	NA	NA	29.99	1015.7
14	10:56	SW 16 G 26	10.00	Overcast	BKN034 BKN043 OVC050	71	56			59%	NA	NA	30.00	1015.9
14	09:56	SW 18 G 28	10.00	Overcast	OVC031	68	57			68%	NA	NA	30.00	1016.1
14	08:56	SW 18 G 24	10.00	Mostly Cloudy	BKN025 BKN150	67	57			71%	NA	NA	30.00	1015.8
14	07:56	SW 16	10.00	Mostly Cloudy	SCT120 BKN250	65	56	68	63	73%	NA	NA	30.00	1016.0
14	06:56	SW 15	10.00	Fair	CLR	64	55			73%	NA	NA	30.00	1015.9
14	05:56	SW 13	10.00	Fair	CLR	65	55			70%	NA	NA	29.99	1015.6
14	04:56	SW 15	10.00	Fair	CLR	66	54			65%	NA	NA	30.00	1016.0
14	03:56	SW 16	10.00	Fair	CLR	66	54			65%	NA	NA	30.00	1016.0
14	02:56	S 15	10.00	Fair	CLR	66	55			68%	NA	NA	30.01	1016.1
14	01:56	S 13	10.00	Fair	CLR	66	56	72	64	70%	NA	NA	30.02	1016.5
14	00:56	S 16	10.00	Fair	CLR	64	56			75%	NA	NA	30.03	1016.8
13	23:56	S 12	10.00	Fair	CLR	64	56			75%	NA	NA	30.02	1016.7
13	22:56	SW 9	10.00	Fair	CLR	66	56			70%	NA	NA	30.02	1016.6
13	21:56	SW 12	10.00	Fair	CLR	67	56			68%	NA	NA	30.03	1016.8
13	20:56	S 12	10.00	Fair	CLR	66	56			70%	NA	NA	30.01	1016.4
13	19:56	SW 13	10.00	Fair	CLR	72	56	82	71	57%	NA	NA	30.01	1016.3
13	18:56	SW 20	10.00	Fair	CLR	75	54			48%	NA	NA	30.00	1016.1
13	17:56	S 17	10.00	Fair	CLR	71	55			57%	NA	NA	30.01	1016.2
13	16:56	S 17	10.00	Fair	CLR	75	55			50%	NA	NA	30.00	1016.1
13	15:56	S 18	10.00	Fair	CLR	74	55			52%	NA	NA	30.01	1016.4
13	14:56	S 20	10.00	Fair	CLR	74	55			52%	NA	NA	30.03	1017.0

Date	Time (edt)	Wind (mph)	Vis. (mi.)	Weather	Sky Cond.	Air	Dwpt	Max. 6 hour	Min. 6 hour	Relative Humidity	Wind Chill (°F)	Heat Index (°F)	altimeter (in.)	sea level (mb)	1 hr	3 hr	6 hr
						Temperature (°F)							Pressure		Precipitation (in.)		
13	13:56	SW 16 G 26	10.00	Fair	CLR	81	51	81	56	35%	NA	80	30.06	1018.1			
13	12:56	S 10	10.00	Fair	CLR	70	56			61%	NA	NA	30.09	1018.9			
13	11:56	S 16	10.00	Fair	CLR	68	56			65%	NA	NA	30.12	1020.0			

National Weather Service
Southern Region Headquarters
Fort Worth, Texas

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